IOWA HOT MIX ASPHALT (HMA) GYRATORY MIX DESIGN FOR URBAN SYSTEMS

IMPLEMENTATION BULLETIN #1
JUNE 2003

This is the first in a series of bulletins to be issued by the Implementation Team. It is the intent of the Implementation Plan to successfully apply Gyratory Mix Design Technology for all future asphalt paving in Iowa. This Implementation Plan will allow urban systems to continue to utilize their existing aggregates under Gyratory Mix Design criteria. Minor adjustments to mixtures may be necessary; however, it is the intent of the implementation evaluation to NOT have a significant impact on the current urban system asphalt programs.

The full implementation of designs using gyratory compaction criteria for the entire state of Iowa is now targeted for construction season 2004. Committee members represent the Iowa DOT, the Asphalt Paving Industry, Cities and Consultants.

Training programs are being upgraded in preparation for the winter 2003-2004 training season. Agency, consultant and industry representatives are encouraged to take advantage of the free training sessions that will be held statewide. For information on Gyratory Mix training contact Mike Heitzman or contact the Asphalt Paving Association of Iowa (APAI).

The committee is ready to accept gyratory test data from 2003 city Marshall projects that are performing satisfactorily. Please refer to the attached instructions for the data requirements for this mixture evaluation. The gyratory evaluation of currently used (satisfactorily performing) Marshall mixtures is the key component of the Implementation Plan. Industry and Agency attention and effort to this activity is essential for a successful implementation of gyratory technology for urban systems. If you have any questions about this process contact Dan Redmond.

To make sure that your asphalt mixes are represented in the test data that is evaluated, we encourage you to submit your materials to your DOT District Materials Lab or asphalt project contractor for testing. A broad representation of mixtures statewide will ensure that the technology can be implemented with minimal impact to the urban systems' asphalt programs. If your local agency has no asphalt construction scheduled for this season, but you want to make sure that your area is represented, mix design materials from 1993 to the present can be evaluated. Work with your District Materials lab for instruction and assistance in obtaining representative samples of the aggregates to be evaluated.

If you are currently incorporating Gyratory technology into your asphalt program we encourage you to submit your Mix Designs for evaluation. This will ensure that your mix information is included in the test data that is compiled.

After testing and evaluation has been completed, we will determine whether additional bid items will be required. Our goal is to provide bid items to encompass adequately performing mix designs that are currently being incorporated in urban systems and are specific for urban applications. For this reason it is imperative that you submit your information so that your area will be represented in the test data that is evaluated!

If you desire more information about this Implementation Plan please contact Brenda Boell.

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INSTRUCTIONS FOR EVALUATION OF MARSHALL MIXTURES IN THE GYRATORY COMPACTOR AND FOR EVALUATION OF GYRATORY MIX DESIGNS CURRENTLY BEING USED FOR URBAN SYSTEMS

ADDENDUM TO URBAN IMPLELENTATION BULLETIN #1

The Gyratory implementation plan for urban systems calls for the evaluation of currently used adequately performing mix designs. The evaluation involves checking the urban systems' Marshall mix designs by compacting them in the gyratory compactor to provide the information needed to assure a smooth transition into Gyratory technology. Both contractor labs and Iowa D.O.T. labs will be involved in the evaluation of Marshall mixtures commonly used in urban applications. To obtain the greatest benefit from this work, a consistent set of data must be gathered.

The following procedures should be employed:

All mixtures should be compacted at 275 degrees F. and compacted to 134 gyrations. One specimen will be sufficient to provide data; however, the average of two specimens is preferred as called for in the test method.

The following data should be reported from the testing laboratory for each mixture evaluated:

1. A form 955 or similar report showing the sources of the aggregates and the combined gradation.
2. A form 956 or similar report showing the Marshall mix design data for the evaluated mixture and the City where it was used.
3. A statement describing the traffic information of the roadway where the mix was utilized [traffic count (or ESAL level if known), type of traffic (residential, business, thoroughfare, parking lot, alley, etc.), traffic pattern (steady flow or stopping / turning traffic, pedestrian traffic, etc)].
4. The Maximum Specific Gravity (Gmm) - either from testing the evaluation sample or from the daily QC data associated with the sample (please identify which when you submit it).
5. The Bulk Specific Gravity (Gmb) at Nmax of 134.
6. The height printouts for each specimen from the gyratory compactor and the mass of each specimen.
7. If testing plant-produced mixture, include any available Marshall QC data for the sample.

Forward all test data to Dan Redmond in the Central Materials Office when complete.